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Formyl peptide receptor polymorphisms: 27 most possible ways for phagocyte dysfunction

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Abstract

© 2017, Pleiades Publishing, Ltd.Formyl peptide receptors (FPRs) expressed by mammalian myeloid cells are the important part of innate immunity. They belong to the seven-transmembrane domain class of receptors coupled to heterotrimeric GTP-binding proteins. Binding of the receptor with a wide spectrum of exogenous and endogenous ligands triggers such defensive phagocyte reactions as chemotaxis, secretory degranulation, and respiratory burst, keeping a balance of inflammatory and antiinflammatory processes in the organism. The association between single nucleotide polymorphisms in the gene of FPR1 receptor resulting in disruption of the receptor structure and the development of certain pathologies accompanied with inflammation, such as aggressive periodontitis, macular degeneration, and even gastric cancer (Maney, P., and Walters, J. D. (2009) J. Periodontol., 80, 1498-1505; Liang, X. Y., et al. (2014) Eye, 28, 1502-1510; Otani, T., et al. (2011) Biochem. Biophys. Res. Commun., 405, 356-361) has been shown. In this review, we matched the missense mutation of formyl-peptide receptors with their known functional domains and classified them according to their potential significance in pathology.

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Keywords

formyl peptide receptors, FPR1, FPR2, single nucleotide polymorphisms

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